

Serial No. 10/623,437  
Monday, March 19, 2007  
Page 11

**REMARKS**

Claims 1, 2, 4, 10, 16, 43, 49-54, 56-75, 91, 99 and 145 remain pending in this application. Further reconsideration of this application is requested.

In response to the objection to claim 62, claims 62-64 have been cancelled as being substantial duplicates of claims 52-54. Additionally in response to the obviousness-type double patenting rejection, a Terminal Disclaimer is being filed herewith. Withdrawal of the objection and rejection on these grounds is requested.

The rejection of claims 1, 2, 4, 10, 43, 44, 49, 51, 52, 58, 59, 61, 62, 65, 69, 70, 72, 73, and 99 as being anticipated by Morgan et al., U.S. Patent No. 6,205,347 ("Morgan"), is respectfully traversed. Morgan discloses a separate and combined CT and PET imaging suite, wherein a patient table 28 is transportable between a CT scanner system "A" and a PET scanner system "B" via a table transfer system "C" including a base 68 and a rail 70 secured to the base 68. As disclosed by Morgan in col. 8, the patient table 28 includes a series of fiducials or markers 100 disposed or mounted at known locations along the table top to aid in the registration of the resulting CT and nuclear images.

In contrast, claims 1 and 43 set forth a combined positron emission tomography (PET) and X-Ray computed tomography (CT) apparatus for acquiring PET and CT images with a known geometric relationship between pixels of said images. As discussed in the specification, the combined PET/CT apparatus of the invention acquires functional and anatomical images that are accurately co-registered without the use of external markers as must be used by Morgan. In this regard, claim 1 sets forth a PET scanner being provided for acquiring PET image data of a desired region of said patient within a field of view having a predefined relationship with a field of view of said CT scanner, so as to establish said known geometric relationship, and claim 43 sets forth PET image means including a plurality of detectors mounted in fixed relationship to said CT image means.

The separate PET and CT systems of Morgan do not have any known geometric relationship between pixels of the PET images and pixels of the CT images. There is no predefined relationship between a PET field of view and a field of view of the CT scanner, as claimed. Morgan fails to disclose a plurality of PET detectors mounted in

Serial No. 10/623,437  
Monday, March 19, 2007  
Page 12

any fixed relationship to the CT image means. Instead, the PET system is completely independent of the CT system, as shown in Figs. 1 and 2. The patient table transfer system "C" simply transports the patient from one system to the other. Thus, Morgan fails to anticipate independent claims 1 and 43.

Independent claim 49 requires reconstructing a PET image from said acquired PET image data and using said acquired CT image data, to achieve a reconstructed PET image. Contrary to the assertion in the Office action, Applicants are unable to find any teaching in Morgan of using acquired CT image data in reconstructing a PET image in columns 8 – 10. If the Examiner persists in this assertion, a pinpoint citation of the precise location where Morgan discloses such feature is requested.

For similar reasons, the obviousness rejection of claims 53, 54, 63, 64, 68, 74, 75 and 91 as being unpatentable over Morgan; claims 16, 56 and 66 as being unpatentable over Morgan in view of Motomura et al., U.S. Patent No. 6,339,223; and the rejection of claims 50, 60 and 71 as being unpatentable over Morgan in view of DiFilippo et al., U.S. Patent No. 5,969,358, are respectfully traversed. Neither Motomura, cited for its alleged disclosure of "provid[ing] for truncation errors in fan beam based CT images," nor DiFilippo, cited for its alleged disclosure of a PET scanner wherein a patient is moved in an axial direction during scanning, make up for the deficiencies in Morgan with respect to the independent claims. As such, no addition of Motomura or DiFilippo to Morgan could result in the invention as set forth in the dependent claims.

The rejection of independent claim 145 as being unpatentable over Morgan in view of Motomura and DiFilippo also is respectfully traversed. Claim 145 requires continuously moving said patient support in an axial direction within said patient gantry during said step of acquiring PET image data, whereby normalization effects between individual detector rings of said PET scanner are eliminated. The Office action fails to make a *prima facie* case of obviousness, as the rejection does not address the continuously moving limitation or the normalization effect elimination limitation. The Office action alleges only that DiFilippo discloses moving a patient in an axial direction during scanning in order to acquire PET scan data. As such, the rejection of claim 145

Serial No. 10/623,437  
Monday, March 19, 2007  
Page 13

is deficient as a matter of law. Consequently, withdrawal of this ground of rejection is requested.

**Conclusion**

In view of the foregoing, claims 1, 2, 4, 10, 16, 43, 49-54, 56-61, 65-75, 91, 99 and 145 are submitted to define patentable subject over the prior art of record, whether considered individually or in combination. Favorable reconsideration and the issuance of a Notice of Allowance are earnestly solicited.

Please charge any fee or credit any overpayment pursuant to 37 CFR 1.16 or 1.17 to Novak Druce Deposit Account No. 14-1437.

RESPECTFULLY SUBMITTED,					
NAME AND REG. NUMBER	Vincent M. DeLuca Attorney for Applicants Registration No. 32,408				
SIGNATURE			DATE	19 March 2007	
Address	Novak, Druce, DeLuca + Quigg LLP 1300 I Street, N.W., Suite 1000 West Tower				
City	Washington	State	D.C.	Zip Code	20005
Country	U.S.A.	Telephone	202-659-0100	Fax	202-659-0105